

**RULE 466.1. VALVES AND FLANGES**

(a) Definitions

For the purpose of this rule:

- (1) A Valve is defined as any device that regulates the flow of fluid in a piping system by means of an external actuator acting to permit or block passage of fluid including the attached flange and the flange seal.
- (2) Commercial Natural Gas is a mixture of gaseous hydrocarbons, chiefly methane, used as a fuel and obtained from a company licensed to dispense such gases.
- (3) Background is defined as the ambient concentration of volatile organic compounds determined at least three (3) meters upwind from the valve or flange to be inspected.
- (4) Volatile Organic Compounds are compounds of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, ethane, methane, 1,1,1 trichloroethane, methylene chloride and trichlorotrifluoroethane, that have a Reid vapor pressure greater than 80 mm Hg (1-55 pounds per square inch), or an absolute vapor pressure (AVP) greater than 36 mm Hg (0.7 psi) at 20oC.
- (5) A Working Day is any day of the week except Saturday or Sunday or employee holiday.
- (6) A Refinery is an establishment that processes petroleum as defined in Standard Industrial Classification Manual as Industry No. 2911 Petroleum Refining.
- (7) A Flange is defined as a projecting rim on a pipe or piping component used to attach it to another piping detail.
- (8) A Leak is defined as:
  - (A) The dripping of liquid volatile organic compounds at a rate of more than three drops per minute; or
  - (B) The detection of gaseous volatile organic compounds in excess of 10,000 ppm above background when measured at the source as hexane with a portable hydrocarbon detection instrument.
- (9) A Chemical Plant is any plant producing organic chemicals and/or manufacturing products by organic chemical processes.

**(b) Requirements**

- (1) The operator of a refinery or chemical plant is subject to the provisions of this rule and is responsible for performing the required inspections. Each operator shall, no later than 60 days after the date of adoption of this rule, submit a management plan detailing the component inspection sequence and the schedule for the inspection program to be conducted by the operator at the refinery or chemical plant.
- (2) Each valve or flange in a petroleum refinery or chemical plant handling volatile organic compounds shall be inspected in accordance with paragraph (c). Any such valve or flange found to leak shall be repaired in accordance with paragraph (d).
- (3) Each valve located at the end of a pipe or line containing volatile organic compounds, shall be sealed with a blind flange, plug, or cap when not in use, except:
  - (A) A valve on a product sampling line;
  - (B) A safety pressure relief valve;
  - (C) A bleeder valve in a double block and bleeder valve system.
- (4) Each valve which has been discovered to leak in accordance with the definition of paragraph (a)(8) shall be affixed with a record of inspections for the succeeding twelve-month period. Alternative methods of recordkeeping may be used, including the maintenance of records in a centralized location, provided that prior approval of the Executive Officer has been obtained.
- (5) Any valve or flange in excess of one valve or flange per day, found to leak by District personnel within five days after the scheduled inspection of subparagraph (b)(1) shall constitute a violation of this rule if:
  - (A) the liquid leakage exceeds three drops per minute, or
  - (B) the measured volatile organic concentration at the source exceeds 75,000 ppm measured at within one centimeter of the source as hexane above background.

**(c) Inspection**

- (1) All valves handling volatile organic compounds shall be inspected for leaks according to the following schedule:

- (A) All valves used in any refinery shall be inspected once between January 1, 1979 and June 30, 1979 and once between July 1, 1979 and December 31, 1979.
  - (B) All valves used in any chemical plant shall be inspected once between July 1, 1979, and December 31, 1979, and once between January 1, 1980, and June 30, 1980.
  - (C) After January 1, 1980, all valves used in any refinery shall be inspected annually except as provided in subparagraph (c)(1)(E).
  - (D) After June 30, 1980, all valves used in any chemical plant shall be inspected annually except as provided in subparagraph (c)(1)(E).
  - (E) In addition to the annual inspection in subparagraph (c)(1)(C) and (c)(1)(D), each valve found to leak shall be reinspected three months after repair of such leak. Valves found to be leaking at the three months' reinspection shall be repaired and reinspected after 30 days. Valves found to be leaking after the 30 day reinspection shall be repaired and reinspected at intervals of one-half the prior interval, except no valve need be inspected more frequently than once per day.
- (2) Process piping flanges shall be inspected annually.
  - (3) Continuous monitoring flammable gas detection devices which send a visual or audible signal when a leak occurs, may, with the approval of the Executive Officer, be substituted for periodic inspections using leak detection equipment in applicable facilities or parts of facilities.
- (d) Repair
- (1) Each leaking valve or flange shall be repaired within two working days after detection of such leak, except as provided in subparagraph (d)(2). The repairs will be such that:
    - (A) There is no dripping of liquid volatile organic compounds at a leakage rate exceeding three drops per minute, or
    - (B) No concentration of gaseous volatile organic compounds in excess of 10,000 ppm above background are detected when measured at the source with a portable hydrocarbon detection instrument.
  - (2) If, after repairs are completed, the leak rate is greater than three drops per minute or the detectable gaseous volatile organic compound are 10,000

ppm or greater measured at the source, one of the following actions will be taken:

- (A) Emergency repairs shall be made to reduce the emission rate to the rate stated in (a)(8)(A) and (a)(8)(B); or
  - (B) The emissions from the leak shall be vented into an approved air pollution control device, or (C)@iii) A petition for a variance shall be filed on the next working day.
- (3) The persons complying with the provisions of the rule shall be exempt from the provisions of Rule 430 insofar as the provisions of Rule 430 would apply to leaking valves or flanges.

(e) **Measurement Requirements**

- (1) The instruments used for the measurement of gaseous volatile organic compounds shall be equated to calibrating with hexane and sampling at one liter per minute.
- (2) Actual measurement of gaseous leakage rates may be conducted within a distance of two inches from the potential source using a concentration versus distance relationship specified by the Executive Officer.

(f) **Recordkeeping**

Persons subject to this rule shall:

- (1) Maintain records of inspections of valves for one year.
  - (A) With the approval of the Executive Officer, inspection records by operational system or plant area will be adequate to demonstrate compliance with annual inspection requirements.
  - (B) Annual inspection records for the continuous monitoring equipment described in subparagraph (c)(3) shall not be required, provided that records are maintained for out-of-tolerance conditions as indicated by the monitoring equipment.
- (2) Make inspection records available for review to the Executive Officer upon request.
- (3) Recordkeeping requirements shall not apply to-the routine periodic inspection of flanges.

(g) Exemptions

- (1) The provisions of this rule shall not apply to:
  - (A) Valves or flanges handling gases in which commercial natural gas is the only volatile organic compound.
  - (B) All valves or flanges which are located in areas which make inspection infeasible or unsafe for personnel provided that prior concurrence of the Executive Officer has been obtained.
  - (C) Valves or flanges handling gases with a hydrogen composition of 80 percent or greater.
  - (D) Valves or flanges regulated by Rule 1005.

(h) Effective Dates

- (1) The owner or operator of any refinery shall comply with the requirements of paragraph (b)(3) no later than January 3, 1979.
- (2) The owner or operator of any chemical plant shall comply with the requirements of paragraph (b)(3) no later than July 4, 1979.
- (3) The owner or operator of any chemical plant or refinery shall comply with the requirements of this rule 60 days from the date of adoption.